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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,743	10/01/2004	Jerome K. Hastings	ETC7455.065	5742

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EXAMINER	
NGUYEN, VINH P	

ART UNIT	PAPER NUMBER
2829	

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/711,743	HASTINGS ET AL.	
	Examiner	Art Unit	
	VINH P. NGUYEN	2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) *10-13 and 26-28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,9,15-17,23-25 and 29-31* is/are rejected.

7)☒ Claim(s) *5-8,14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *0505,1005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. In response to Applicants' remarks filed on 02/09/06, Examiner agrees to rejoin group II into group I and the species of figure 4, species of figure 6 and species of figure 8 are still valid in group I. Applicants elect species of figure 6 including claims 1-9,14-25 and 29-31 is acknowledged.

2. Claims 10-13,26-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 02/09/06.

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

4. The abstract of the disclosure is objected to because legal phraseology such as "the present invention" is used. Correction is required. See MPEP § 608.01(b).

5. Claims 1-9,14-15,22-23 are objected to because of the following informalities:

In claim 1, it is unclear what "a conductor" comprises of. Is it shown in the elected species of figure 6? Furthermore, it is also unclear how " a conductor" is interrelated and associated with the helix shaped flux concentrator, therefore it is unclear how the current is sensed.

In claim 9, it is unclear how the conductor is interrelated with the helix shaped flux concentrator. Is this conductor (wire) is different from the spiral conductive wire (62)?

In claim 22, it is unclear what are requirements to select first and second Hall effect sensors in order to reduce errors attributable to Hall gain drift and Lorentz force.

In claim 23, "the second Hall effect device" has not been recited previously, therefore this term is indefinite.

The dependent claims not specifically address share the same indefiniteness as they depend from rejected base claims.

Appropriate correction is required.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 16-17,23-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Civil et al (GR # 2,255,645A).

As to claim 16, Civil et al disclose a current sensor as shown in figure 1 having at least one spiraled helix conductive path (8) configured to receiver a current flow therethrough and concentrate magnetic flux induced by the current flow through the at least one spiraled helix conductive path (8) and at least one Hall effect sensor (4) positioned proximate to the at least one spiraled helix conductive path (8) configured to sense the magnetic flux and provide a signal indication of the current flow through the spiraled helix conductive path (8).

As to claim 17, it appears that the Hall effect sensor is configured to provide a determination of a magnitude and direction of current flow through the helix conductive path (8).

As to claim 23, Civil et al also disclose a current sensor as shown in figure 2 having the first and second Hall effect sensors (4,10) are disposed within the at least one spiraled helix conductive path (8).

As to claim 24, it appears that the current sensor of Civil et al is substantially free of ferromagnetic flux concentrating devices.

8. Claims 25,29-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Lienhard et al (Pat No. 4,464,625).

As to claim 25, Lienhard et al disclose a current sensor as shown in figure 3 having a conductor (9) configured to receive a current flow (Im) and an anti-differential current sensor (10) configured to monitor the current flow through the conductor (9). It is noted that the conductor (9) is arranged according to a helix topology.

As to claim 29, the conductor is a wire (9).

As to claim 30, it appears that the anti-differential current sensor (10) is substantially free of ferromagnetic flux concentrating materials.

9. Claims 1-4,9,15 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Lienhard et al (Pat No. 4,464,625).

As to claims 1, 31, Lienhard et al disclose a current sensor as shown in figure 3 having a conductor (a piece of straight wire connected to the coil "9")configured to receive a current flow (Im) and an anti-differential current sensor/calculator (1-4,10) configured to monitor the current flow through the conductor and a helix shaped flux concentrator (9) configured to concentrate magnetic flux induced by current flow through the conductor.

As to claim 2, the anti differential current sensor (1-4,10) of Lienhard et al includes at least two magnetoresistance thin films (1-4) and a processing element (10) for receiving feedback from the at least two thin films (1-4) and generate an anti differential output to substantially remove feedback generated responsive to magnetic flux induced externally from the conductor. It is noted that the magnetoresistance film is the same as the Hall effect device since they both are used for detecting magnetic field.

As to claim 3, the component (10) is a differential amplifier.

As to claim 4, it appears that the helix shaped flux concentrator (9) includes a spiral conductive path and the anti-differential current sensor (1-4,10) includes at least one magnetic flux sensor (1,2,3,4) disposed proximate the at least one spiral conductive path to detect magnetic flux induced by the current (Im) flow through the conductive spiral path.

As to claim 9, the conductor is a wire.

As to claim 15, it appears that the helix shaped flux concentrator (9) includes a spiral wire (9) forming a portion of the conductor.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Naoi et al (Pat # 5,241,263) disclose electric current detecting apparatus using the Hall effect element of a magnetoresistance element for detecting a magnetic field.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VINH P. NGUYEN whose telephone number is 571-272-1964. The examiner can normally be reached on 6:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 571-272-2034. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VINH P NGUYEN
Primary Examiner
Art Unit 2829
03/01/06